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NORTHWICH CHESHIRE

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OUR REF. K.2.

YOUR REF.

DATE. 24th May, 1948.

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Dr. R.A. Kehoe,
Kettering Laboratory of Applied Physiology,
University of Cincinnati,
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OHIO,
U.S.A.

Dear Dr. Kehoe,

I am most grateful for your letters of the 1st and 15th May and their contents, which are of great value to us here.

It would appear, as you stated, that ventilation of sludge-free tanks is necessary, and our regulations will, therefore, require to be amended accordingly. As they stand they imply that a tank that has been sludge-freed may be entered immediately afterwards without any protective equipment. At least, that is the interpretation put on them by some of our customers. In the Ethyl Corporation's instructions for the use of the Lead in air Analyzer, it is stated that sufficient time should be given for the tank to air out completely before sampling the air in the tank, and the instructions give reasons for high results.

I was at Hayle recently and saw a man who had suffered from mild ethylene dibromide poisoning as a result of cleaning a rail tank waggon with a top opening. The history is as follows:-

About 10.0 a.m. on the morning of Monday, 10th May, 1948, [redacted] aged 42 years, employed since February 1948, entered a dibromide rail tank waggon for cleaning purposes. The waggon had previously been boiled for about twenty-four hours and subsequently washed out with sea water. The tank was pronounced fit to enter for cleaning by the Safety Officer prior to entry. Webster, who was engaged on this work for the first time, had no protective clothing and no respiratory protection. From past experience it would appear that such were not necessary. He felt uncomfortable inside the tank, chiefly from the intense heat. The temperature that day had been in the region of 80°F. He came out of the tank frequently for fresh air in accordance with current practice. He finally left the tank at 11.45 a.m. not having recognised any unusual odour whilst he was in it. On reaching the ground he became slightly nauseated, retched and vomited. After bathing he continued to retch and vomit although he experienced but little nausea. From the history given he was slightly confused. He was seen shortly afterwards

(Contd.)

by Dr. W.H. Palmer, who had him admitted to St. Michael's Hospital, Hayle, for observation. He continued to retch and vomit until 5.0 p.m. He had little abdominal pain and no other signs of symptoms at that time, other than a moderate degree of irritation of the eyes which did not come on until he was in hospital. He recovered gradually and was discharged on the 12th May, 1948.

The tank waggon had an unmistakable odour at 11.45 a.m. when examined by the same Safety Officer.

The diagnosis, therefore, may be considered as:

(1) Ethylene dibromide poisoning.
(2) Heat exhaustion.
(3) Combination of (1) and (2), or some other cause.

He was examined by me at 12.30 p.m. on Thursday, 13th May. He had no complaints other than hoarseness and slight weakness. There was no evidence of any organic disease. The skin was normal. There was no evidence of irritation of the eyes or throat. He did, however, exhibit a moderate degree of inflammation of the middle ears, a marked congestion of the pharynx, a mild degree of inflammation of the vocal cords, and mild bronchitis. Witnesses stated that Webster is always a little hoarse, but the clinical evidence indicated that the vocal cord inflammation was of recent origin.

It is my opinion that [redacted] was suffering from a mild degree of ethylene dibromide poisoning. He has suffered no loss of morale and is prepared to undertake similar work again.

The tank waggon involved was inspected on the morning of Tuesday, 11th May, approximately twenty-four hours after it had first been entered. The manhole was off. The cleaning was incomplete. There was no detectable odour. A small quantity of black sludge remained in the bottom. The inner surface was covered with scale about 3/16" thick, black, brittle, dry and odourless. No dibromide was found in a sample by available laboratory methods. Cleaning was completed that afternoon. There was a heavy odour of ethylene dibromide present at 3.0 p.m. The operator in the interior stated that it arose when he commenced to remove the sludge.

Suggestions for tank cleaning operations in the future were formulated:

1. Each man engaged on tank cleaning shall know the odour of ethylene dibromide.

2. Tank waggons shall continue to be boiled for twenty-four hours and subsequently flushed with sea water.

3. The tank waggon shall be inspected and pronounced fit to enter by the Safety Officer, who will re-inspect the waggon at half-hourly intervals.

4. During hot weather the tank waggon shall be kept cool by cold water applied to the outside during the period the workmen are removing the sludge and scale from the interior.

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5. Full protective equipment shall be worn.
   (1) Protective clothing.
   (2) Positive pressure air line.

6. Not more than a ten minute period should be spent in the interior of the tank. This will be followed by a five minute rest period outside the tank.

7. As far as possible, the interior will be kept moistened to reduce the dust, and the scale removed with a wire brush.

8. The sludge and scale should not be deposited on the adjacent ground, but should be immediately buried, incinerated or discarded into a culvert.

The present situation as regards medical consultants is chaotic, and I am still far from clear on the situation. Our records are most incomplete. We have not yet received a report from the Australian Office, but from my present knowledge of the areas covered by the London and South American Offices, it would appear that nineteen copies of the "Lead Studies" in English are still in use, two, perhaps four, not in use may possibly be reclaimed, and nineteen cannot be traced. I was unable to obtain any copies of the German translation when I was in Switzerland recently. I shall forward lists of the medical consultants at present employed by the Company, the medical commitments covered by them, their appointments and qualifications, if known, and the literature forwarded. I am, however, certain that we shall not be able to recover sufficient copies of the "Lead Studies" in English, to meet our needs, and some form of instruction for new consultants is necessary at the present time.

I hope to get the Netherlands and the Scandinavian countries covered and clarified by early July.

We are hopeful of getting our central analytical laboratory erected within the next year, as there is now some hope of the building licence being granted. This would not cover one floor of your new extension, so despite the setbacks you have had in getting into it you are certainly a lot better off than we are here.

I shall be writing again soon.

Please give my kindest regards to Mrs. Kehoe,

With kindest personal regards to yourself,

Yours very sincerely,

E. Davison.

E. Davison.